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Abstract

A solid catalyst, consisting of partially halogenated metal oxide or mixed metal oxide or zeolite or zeolite-like solid, represented by a general formula:



wherein, X is halogen element selected from F, Cl, Br and I; P is phosphorous element; M is at least one metallic element selected from alkaline earth metals, rare earth metals, group IIIa metals, non-noble transition metals, Sn, Sb, Bi, Si, thorium and uranium; O is oxygen; H is hydrogen; a is the concentration of halogen element X present in the catalyst in the range from 0.01 wt % to 50 wt %; b is the mole ratio of P to M in the range from zero to 1.0; c and d are the number of oxygen and OH groups, respectively, required to satisfy the valence requirement of the metallic and non-metallic elements (M and P); and the ratio of d to c in the range from zero to about 1.0, with or without any catalyst support, useful for the Friedel-Crafts reactions and also its method of preparation are disclosed.

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